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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,346	11/28/2006	Mitsuhiro Nishina	050203-0147	8961

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EXAMINER	
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ART UNIT	PAPER NUMBER
3748	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,346	NISHINA ET AL.	
	Examiner	Art Unit	
	Jonathan Matthias	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/11/2006, 12/31/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 6-13, and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by International Publication No. WO00/75643 to Banks et al. (Banks).

In reference to claim 1, Banks discloses an addition device (see Fig. 1) for adding a NOx reducing agent to exhaust gas of an engine; a first controller (40, Fig. 1; p. 10, lines 10-20, p. 15, lines 10-30) configured to be in association with the addition device; and a second controller (40, Fig. 1; p. 10, lines 10-20, p. 15, lines 10-30) configured to be in association with the engine, for setting an engine control factor that influences the composition of exhaust gas at the point in time of emission from a cylinder, wherein the first controller detects an abnormality that occurs in the addition device as a first abnormality, and at the time of a first abnormality occurrence when the occurrence of this first abnormality is detected, outputs to the second controller, an engine control signal for making a NOx emission amount of the engine vary from that at normal times, other than at the time of the first abnormality occurrence, under the same operating conditions of the engine (p. 12, line 10- p. 13, line 5; p. 15, lines 8-15; p. 16, lines 1-10; p. 17, lines 9-25; p. 18, lines 9-19).

In reference to claim 2, Banks discloses the first controller controls the addition device, and the second controller detects an abnormality that occurs in an engine part for realizing the engine control factor as a second abnormality (p. 18, lines 9-19), and at the time of a second abnormality occurrence when the occurrence of this second abnormality is detected, outputs to the first controller, an addition device control signal for making a reducing agent addition amount by the addition device vary from that at normal times, other than at the time of the second abnormality occurrence and the first abnormality occurrence (p. 12, line 10- p. 13, line 5; p. 15, lines 8-15; p. 16, lines 1-10; p. 17, lines 9-25; p. 18, lines 9-19).

In reference to claim 6, Banks discloses the first controller outputs an engine control signal for reducing the NOx emission amount of the engine to less than at normal times, at the time of the first abnormality occurrence (p. 16, lines 1-10; p. 17, lines 9-25; p. 18, lines 9-19).

In reference to claim 7, Banks discloses the first controller stops addition of the reducing agent by the addition device, along with outputting of the engine control signal (p. 15, lines 8-15; p. 16, lines 1-10; p. 17, lines 9-25; p. 18, lines 9-19).

In reference to claim 8, Banks discloses the addition device comprises; a tank (30, Fig. 1) for storing an aqueous solution of the NOx reducing agent or a precursor thereof and an injection nozzle (32, Fig. 1) disposed on an exhaust passage of the engine, the injection nozzle injecting the reducing agent or precursor aqueous solution stored in the tank, to add the NOx reducing agent to the exhaust gas (p. 10, lines 10-26).

In reference to claim 9, Banks discloses urea water is stored in the tank (p. 7, line 13 - p. 8, line 15).

In reference to claim 10, Banks discloses a first sensor (52, Fig. 1) for detecting a concentration of the reducing agent or a precursor contained in the reducing agent or precursor aqueous solution stored in the tank, and the first controller detects as the first abnormality, a situation where a value of the concentration detected by the first sensor deviates from a predetermined range (p. 12, lines 10-15; p. 16, line 15—p. 17, line 25).

In reference to claim 11, Banks discloses a second sensor (43, Fig. 1) for detecting a residual amount of the reducing agent or precursor aqueous solution stored in the tank, and the first controller detects as the first abnormality, a situation where a value of the residual amount detected by the second sensor is less than a predetermined value (p. 12, line 25 -p. 13, line 5; p. 16, line 15—p. 17, line 25).

In reference to claim 12, Banks discloses an addition device (see Fig. 1) for adding a NOx reducing agent to exhaust gas of an engine; a first controller (40, Fig. 1; p. 10, lines 10-20, p. 15, lines 10-30) for controlling the addition device; and a second controller (40, Fig. 1; p. 10, lines 10-20, p. 15, lines 10-30) configured to be in association with the engine, wherein the second controller detects an abnormality that occurs in an engine part that influences the composition of exhaust gas at the point in time of emission from a cylinder, and at the time of an abnormality occurrence when the occurrence of this abnormality is detected, outputs to the first controller, an addition device control signal for making a reducing agent addition amount by the addition device vary from that at normal times, other than at the time of the abnormality

occurrence (p. 12, line 10- p. 13, line 5; p. 15, lines 8-15; p. 16, lines 1-10; p. 17, lines 9-25; p. 18, lines 9-19).

In reference to claim 13, Banks discloses the first controller receives the addition device control signal and reduces the reducing agent addition amount corresponding to a reduction in the NOx emission amount related to the abnormality, and increases the reducing agent addition amount corresponding to an increase in the NOx emission amount related to the abnormality (p. 15, lines 8-15; p. 16, lines 1-10; p. 17, lines 9-25; p. 18, lines 9-19).

In reference to claim 16, Banks discloses the NOx reducing agent is ammonia (p. 7, line 13 - p. 8, line 15).

In reference to claims 17-19, under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to be anticipated by the prior art device. The prior art device of Banks would necessarily perform the method as claimed in claims 17 and 18 in its normal and usual operation, and therefore meets the limitations of the claims.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2-4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banks in view of Japanese Unexamined Patent Publication No. 2000-297704A to Shibata et al. (Shibata). A machine translation of the Shibata reference was relied upon for the basis of this rejection.

Banks discloses the device of claims 1, and 12, including monitoring multiple abnormality sources (p. 17, lines 9-15; p. 18, lines 9-17) and monitoring parameters that affect the amount of NOx production (p.12, line 25 – p. 13, line 5), but fails to disclose monitoring abnormalities occurring in the exhaust gas recirculation device. Shibata discloses a similar device that determines an exhaust gas recirculation abnormality and adjusting the amount of reducing agent according to the state of the recirculation device (par. 0026-0063). It has been held that combining prior art elements according to known methods to yield predictable results is obvious (see MPEP 2141). Therefore it would have been obvious to one having ordinary skill in the art at the time of invention to have combined the recirculation abnormality compensation of Shibata with the device of

Banks to have the predictable result in reduced NOx emissions when the recirculation assembly was functioning abnormally.

6. Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the modified Banks in view of US PGPUB No. 2003/0164163 to Lei et al. (Lei).

The modified Banks discloses the devices of claims 2 and 12, but fails to disclose detecting an abnormality in a supercharger. Lei is brought in merely to demonstrate that it is conventional in the art to utilize superchargers as a NOx emission reducing device (par. 0035). It has been held that the use of a known technique to improve similar devices in the same way is obvious (see MPEP 2141). Therefore, it would have been obvious to one having ordinary skill in the art to have improved the device of Banks with a supercharger abnormality detection device to have the benefit of reducing NOx emissions when the supercharger was functioning abnormally.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Matthias whose telephone number is (571) 270-5840. The examiner can normally be reached on Monday-Friday 7:00AM-4:00PM.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas E. Denion/
Supervisory Patent Examiner, Art Unit 3748

JM